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CST 363 – Lab 19 Web App SQL (Group Project)

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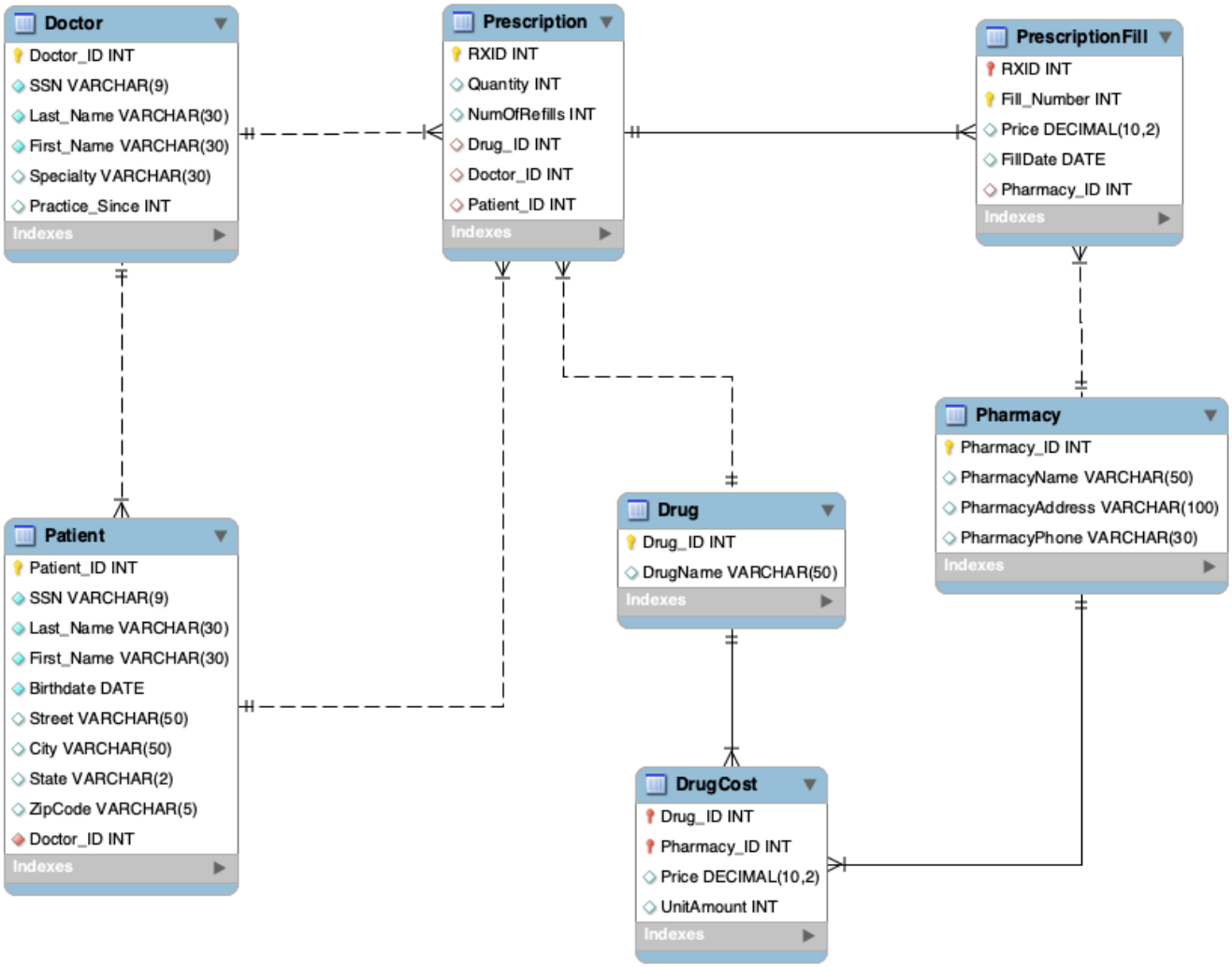
Introduction:

This database is designed for pharmacies to track patient prescriptions, storing information about doctors and patients. The system facilitates the tracking of prescriptions created by doctors for patients, with each refill of the prescription recorded by the PrescriptionFill entity. Each filled prescription includes the date the prescription is filled and the corresponding price. Additionally, the database is equipped with additional functionality to record and manage the pricing information of individual drugs across different pharmacies.



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Description of each entity:

Doctor Entity:

An auto-generated ID serves as the primary key, accompanied by attributes such as the doctor's social security number, first and last name, specialty, and the year they commenced their first year of practice.

Doctor to Patient: Many-to-One Relationship

Many patients can have the same primary doctor, creating a many-to-one relationship between patients and doctors..

Patient Entity:

An auto-generated ID functions as the primary key, and attributes encompass the patient's social security number, first and last name, birth date, and address. A foreign key establishes a relationship with the doctor entity, as one doctor may have multiple patients.

Pharmacy Entity:

The primary key is an auto-generated ID, and the entity records the pharmacy's name, address, and phone number.

Drug Entity:

This entity features an auto-generated ID for drugs and includes a drug name as an attribute.

Prescription Entity:

An auto-generated RXID serves as the primary key, with quantity and the number of refills as attributes. Three foreign keys establish relationships with the drug entity, patient entity, and doctor entity. Notably, one drug may appear in multiple prescriptions, and a doctor can create multiple prescriptions for one patient.

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DrugCost Entity:

This entity maintains records of drug prices, recognizing that different quantities of the same drug may have different prices. For instance, 10 tablets and 100 tablets of the same drug should have different prices. The entity includes attributes such as price and unit of drugs, and a compound primary key consists of Drug_ID and Pharmacy_ID, which are both foreign keys referencing the Drug and Pharmacy tables. This compound key ensures uniqueness for drug costs based on both drug and pharmacy.

PrescriptionFill Entity:

This entity keeps track of each fill or refill of the prescription. Each time a prescription is filled, this entity records pharmacy id, prescription RXID, fill number, price, and date at the time of the fill. PrescriptionFill has a compound primary key consisting of RXID and Fill_Number, with RXID being a foreign key referencing the Prescription table. The RXID uniquely identifies the prescription, and Fill_Number represents the sequential number of the fill for that prescription. This helps to uniquely identify each fill instance for a specific prescription.

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```
-- Drop Database if Exists
DROP DATABASE IF EXISTS Prescription;

-- Create Database
CREATE DATABASE Prescription;

-- Use the Database
USE Prescription;

-- Doctor table
CREATE TABLE Doctor (
  ID INT PRIMARY KEY AUTO_INCREMENT,
  SSN VARCHAR(9) NOT NULL UNIQUE,
  Last_Name VARCHAR(30) NOT NULL,
  First_Name VARCHAR(30) NOT NULL,
  Specialty VARCHAR(30),
  Practice_Since INT
);

-- Patient table
CREATE TABLE Patient (
   Patient_ID INT PRIMARY KEY AUTO_INCREMENT,
   SSN VARCHAR(9) NOT NULL UNIQUE,
   Last_Name VARCHAR(30) NOT NULL,
   First_Name VARCHAR(30) NOT NULL,
   Birthdate DATE NOT NULL,
   Street VARCHAR(50),
```

```
    City VARCHAR(50),
    State VARCHAR(2),
    ZipCode VARCHAR(5),
    Doctor_ID INT NOT NULL,
    FOREIGN KEY (Doctor_ID) REFERENCES Doctor(ID)
);

-- Pharmacy table
CREATE TABLE Pharmacy (
    Pharmacy_ID INT PRIMARY KEY AUTO_INCREMENT,
    PharmacyName VARCHAR(50),
    PharmacyAddress VARCHAR(100),
    PharmacyPhone VARCHAR(30)
);

-- Drug table
CREATE TABLE Drug (
    Drug_ID INT PRIMARY KEY AUTO_INCREMENT,
    DrugName VARCHAR(50)
);

-- DrugCost table
CREATE TABLE DrugCost (
    Drug_ID INT,
    Pharmacy_ID INT,
    Price DECIMAL(10, 2),
    UnitAmount INT,
```

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```
    PRIMARY KEY (Drug_ID, Pharmacy_ID),
    FOREIGN KEY (Drug_ID) REFERENCES Drug(Drug_ID),
    FOREIGN KEY (Pharmacy_ID) REFERENCES Pharmacy(Pharmacy_ID)
);

-- Prescription table
CREATE TABLE Prescription (
    RXID INT PRIMARY KEY AUTO_INCREMENT,
    Quantity INT,
    NumOfRefills INT,
    Drug_ID INT,
    Doctor_ID INT,
    Patient_ID INT,
    FOREIGN KEY (Drug_ID) REFERENCES Drug(Drug_ID),
    FOREIGN KEY (Doctor_ID) REFERENCES Doctor(ID),
    FOREIGN KEY (Patient_ID) REFERENCES Patient(Patient_ID)
);

-- PrescriptionFill table
CREATE TABLE PrescriptionFill (
    RXID INT,
    Fill_Number INT,
    Price DECIMAL(10, 2),
    FillDate DATE,
    Pharmacy_ID INT,
    PRIMARY KEY (RXID, Fill_Number),
    FOREIGN KEY (RXID) REFERENCES Prescription(RXID),
```

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```
    FOREIGN KEY (Pharmacy_ID) REFERENCES Pharmacy(Pharmacy_ID)
);

-- Insert for Pharmacy table
INSERT INTO Pharmacy (PharmacyName, PharmacyAddress, PharmacyPhone) VALUES ('CVS', '100 Main Ave. Los Angeles, CA 90293', '111-222-3333');
INSERT INTO Pharmacy (PharmacyName, PharmacyAddress, PharmacyPhone) VALUES ('Rite Aid', '200 Sunset Ave. Los Angeles, CA 90026', '444-555-6666');

-- Insert for Drug table
INSERT INTO Drug (DrugName) VALUES ('loratadine');
INSERT INTO Drug (DrugName) VALUES ('lisinopril');

-- Insert for DrugCost table
INSERT INTO DrugCost (Drug_ID, Pharmacy_ID, Price, UnitAmount) VALUES (1, 1, 2.00, 1);
INSERT INTO DrugCost (Drug_ID, Pharmacy_ID, Price, UnitAmount) VALUES (2, 2, 5.00, 1);
```

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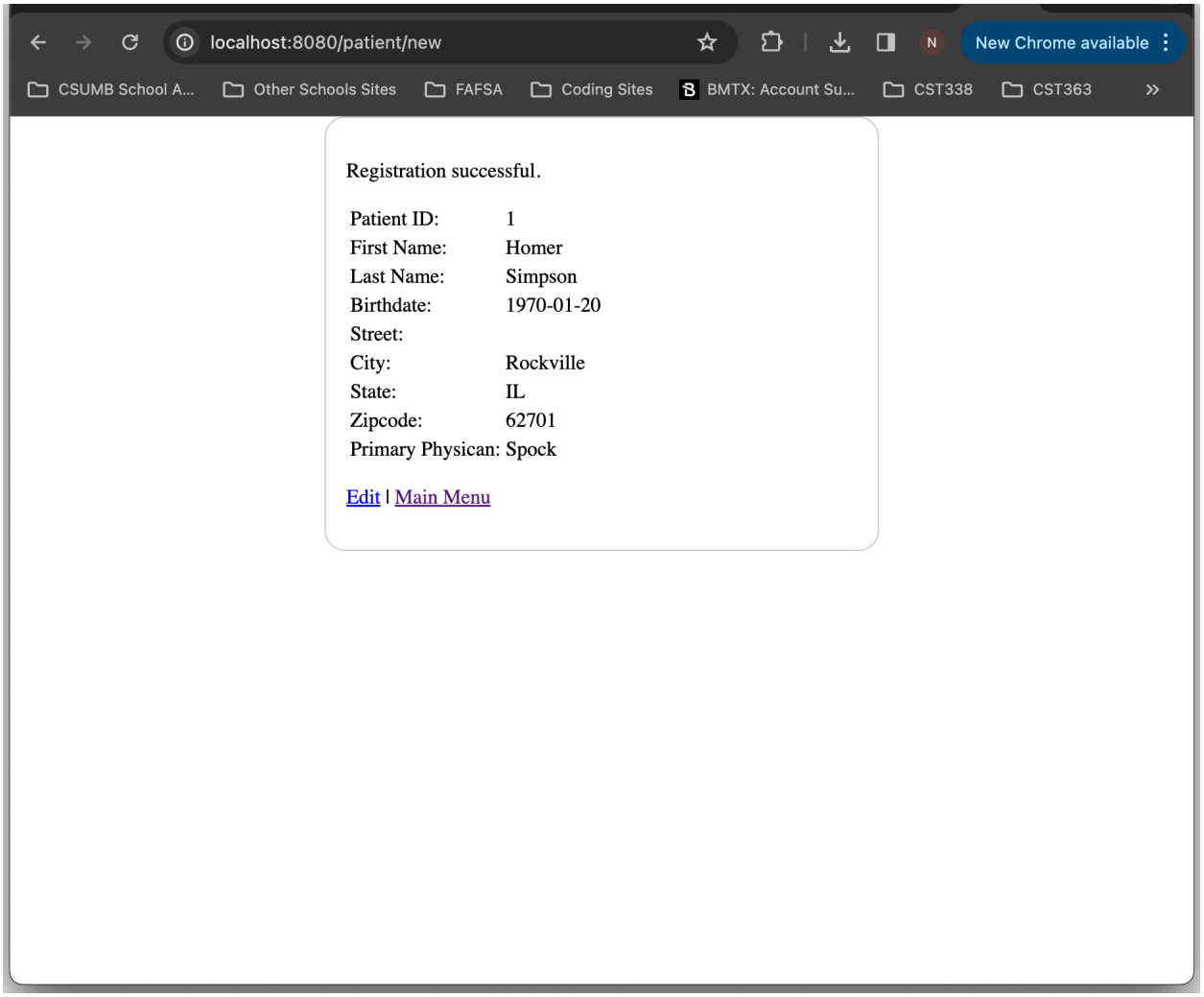
- Register as a new patient with last name “Simpson”, city “Rockville”, zip code 62701 and a doctor with name “Spock”. Show a successful registration.



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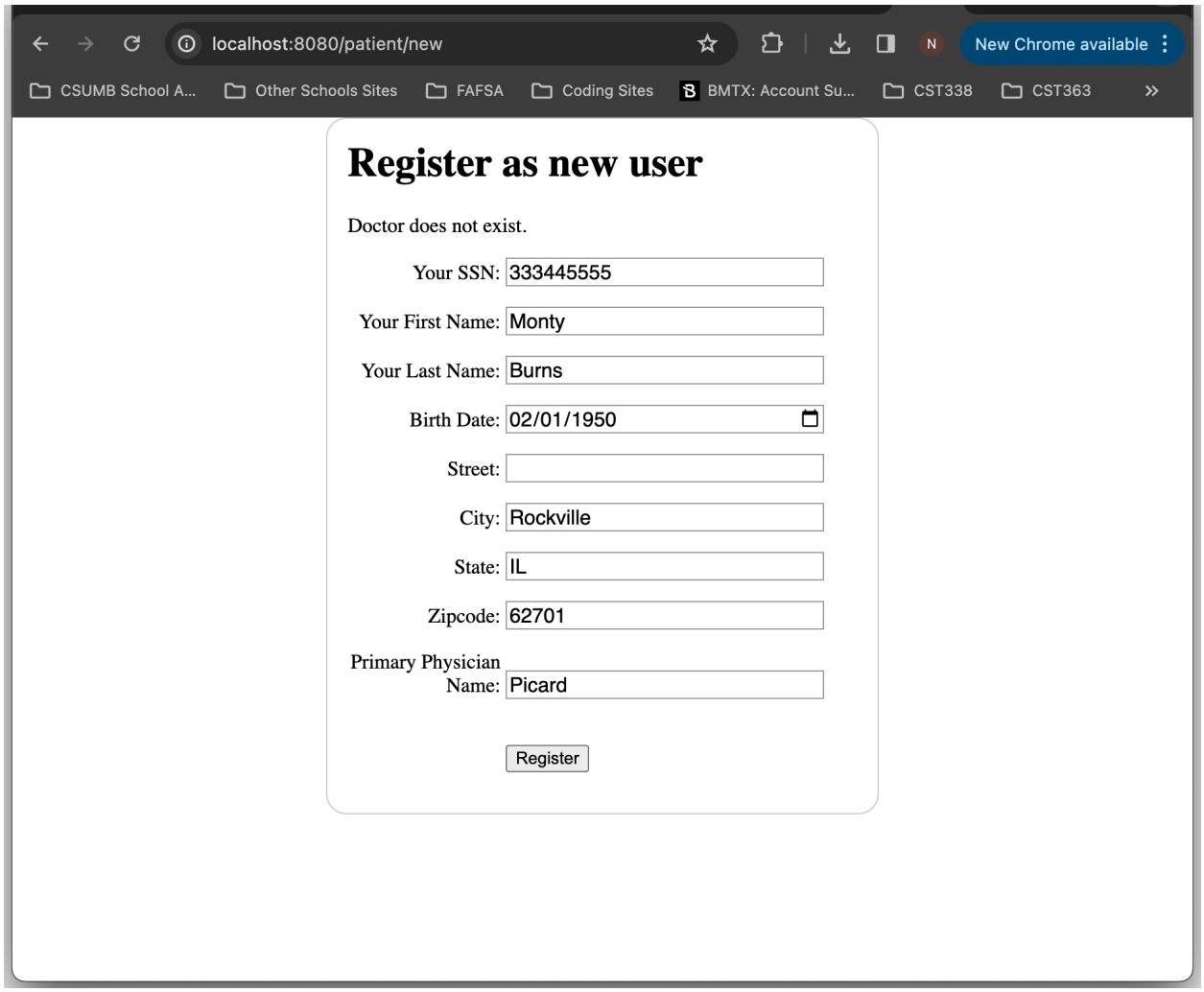
- Attempt to register as a new patient with last name “Burns” but with a doctor name that does not exist. Show a screenshot of the patient register form with the error message.



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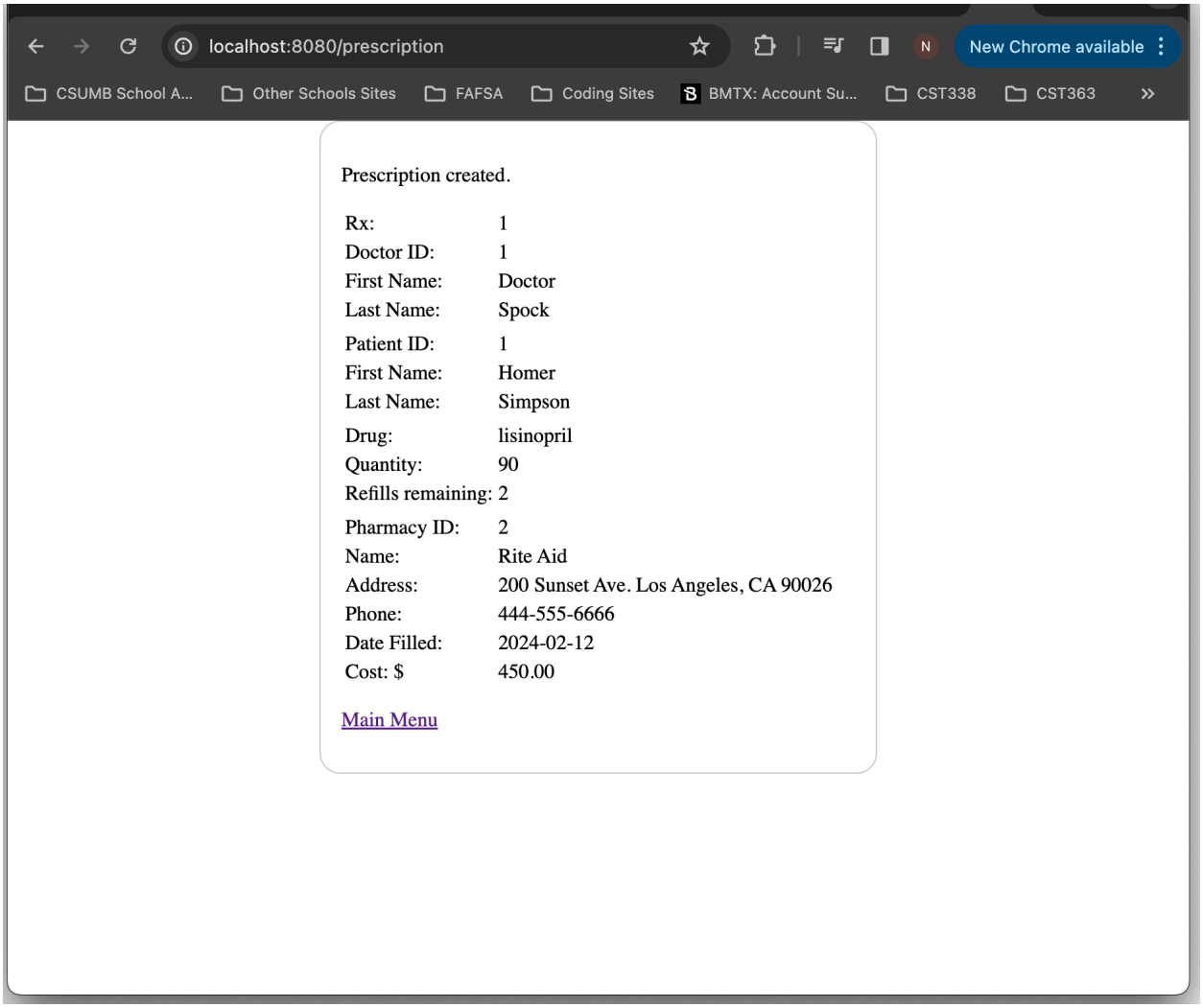
- Create a prescription for the patient “Simpson” and doctor “Spock” for a drug “lisinopril” and quantity 90. Show the screen with the success message and prescription display.



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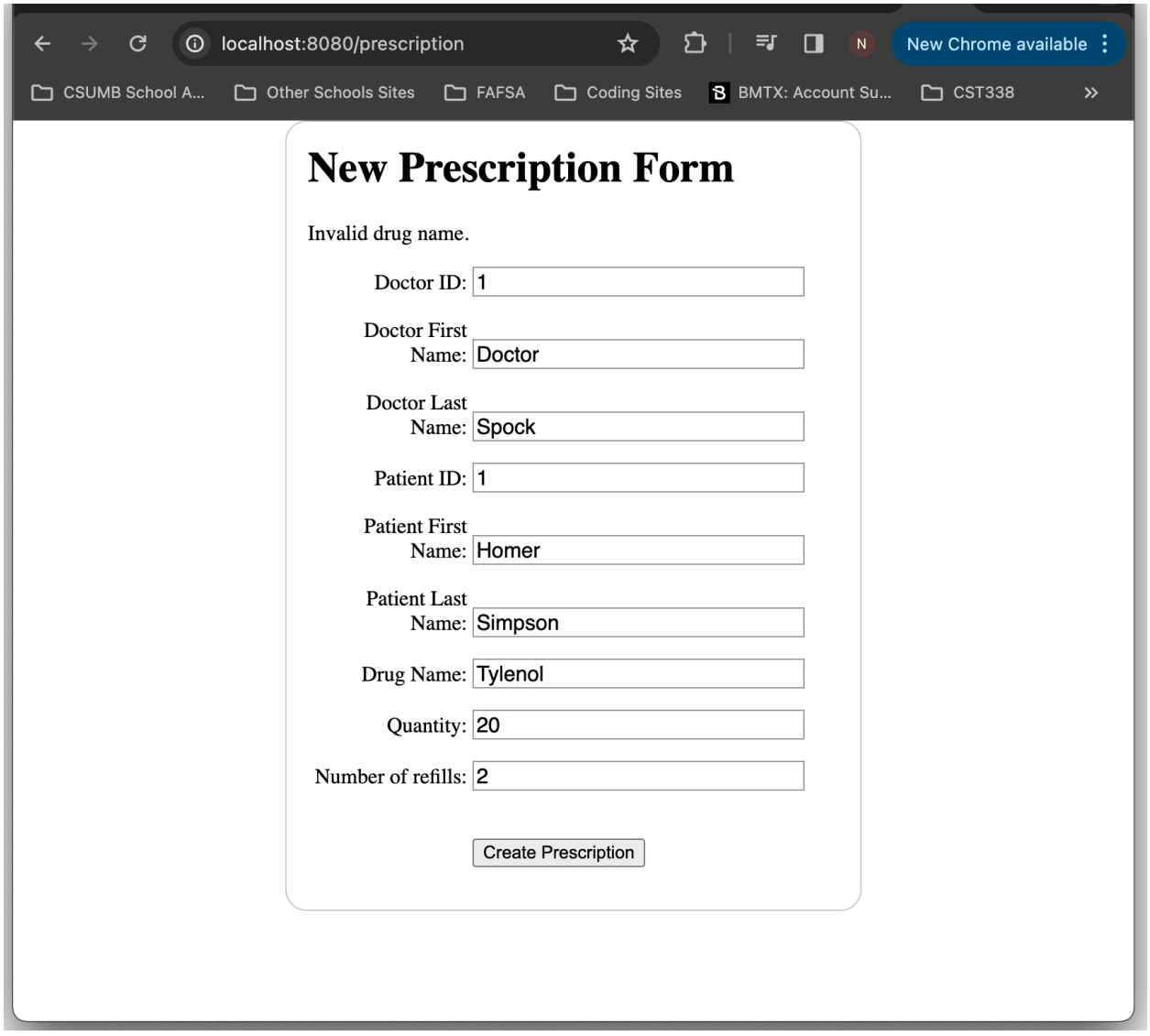
- Attempt to create a prescription with an invalid drug name. Show a screen with the create prescription form and error message.



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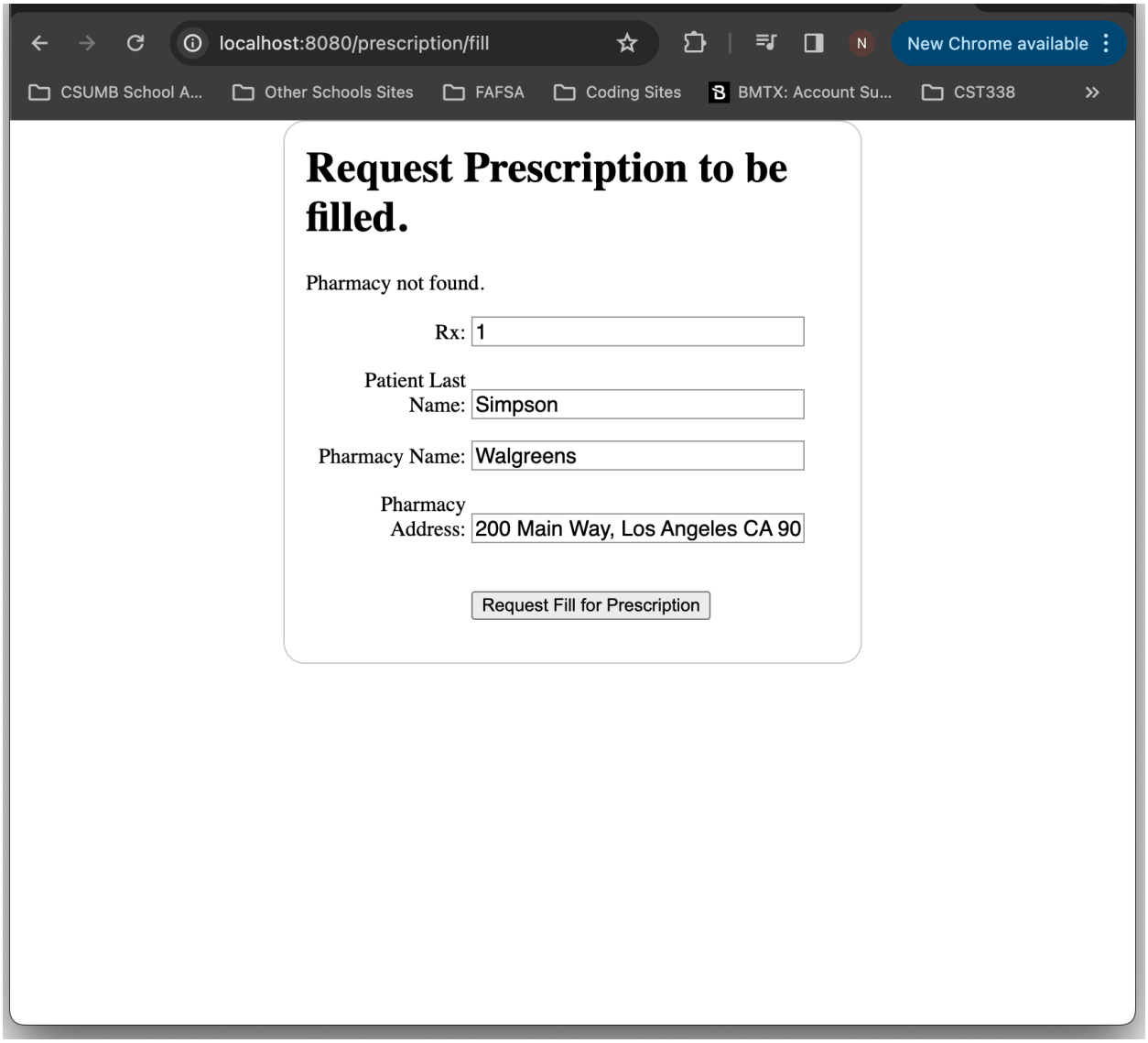
- Attempt to fill a prescription with an invalid pharmacy name.



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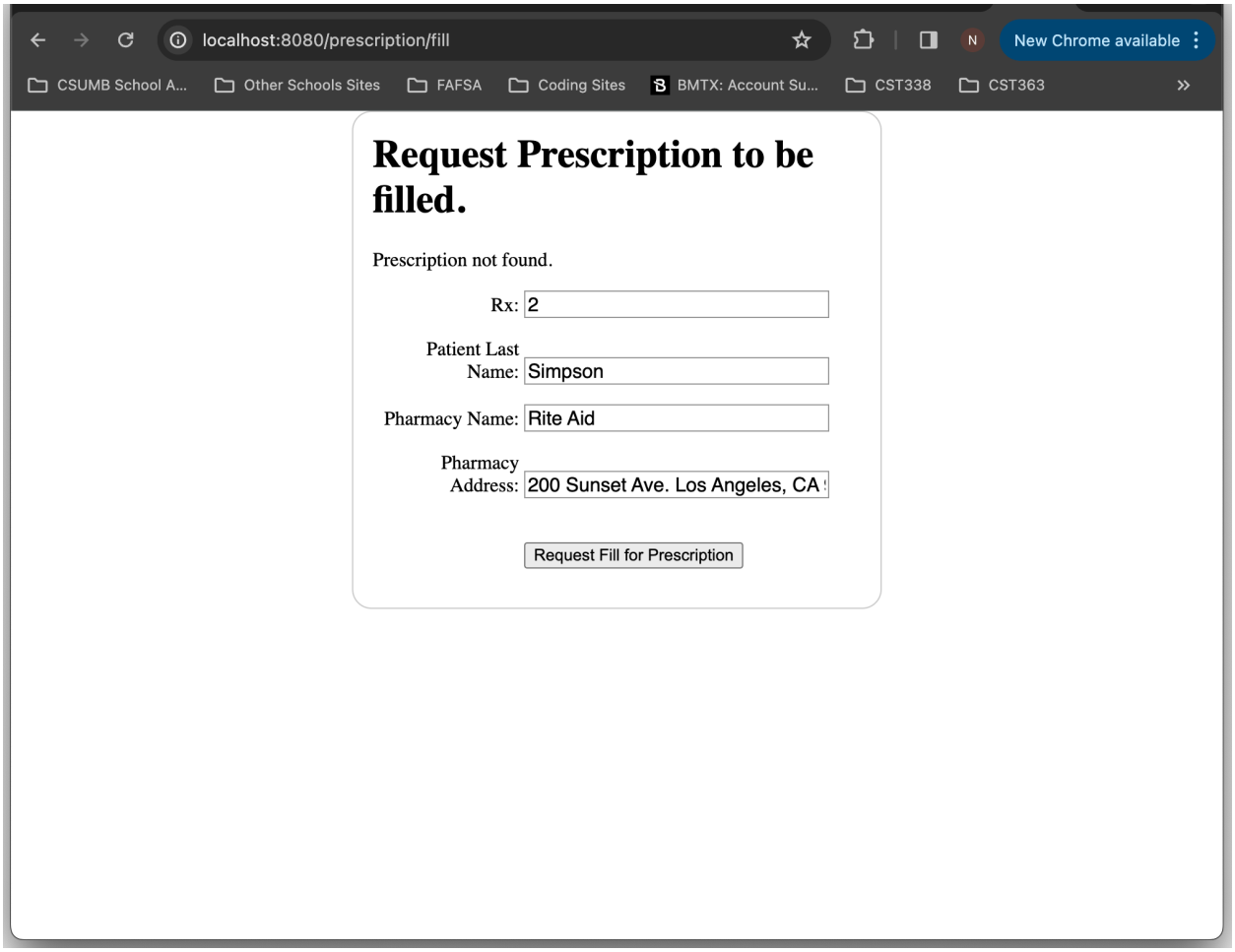
- Attempt to fill a prescription with an invalid rxid.



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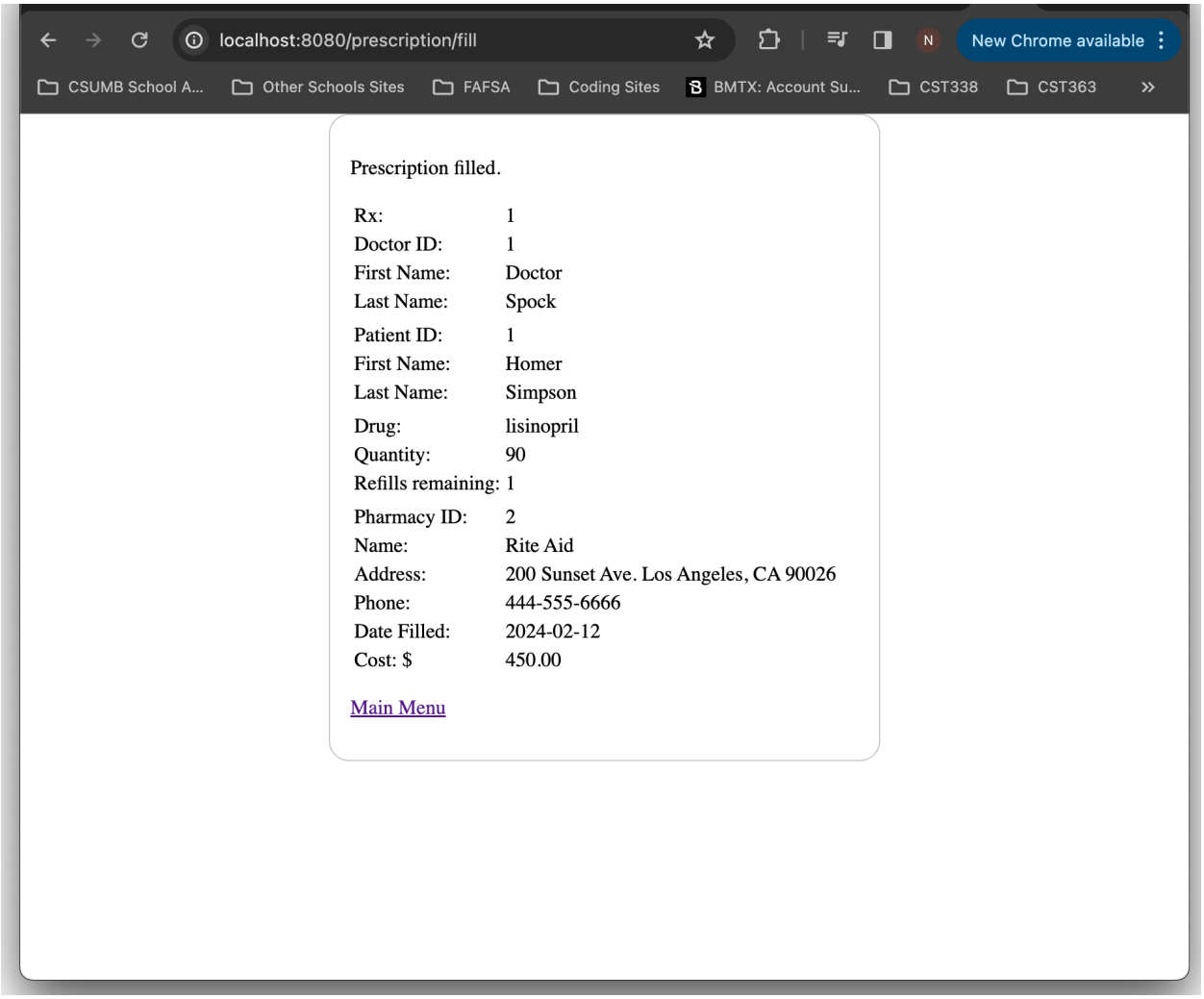
- Fill the prescription with success.



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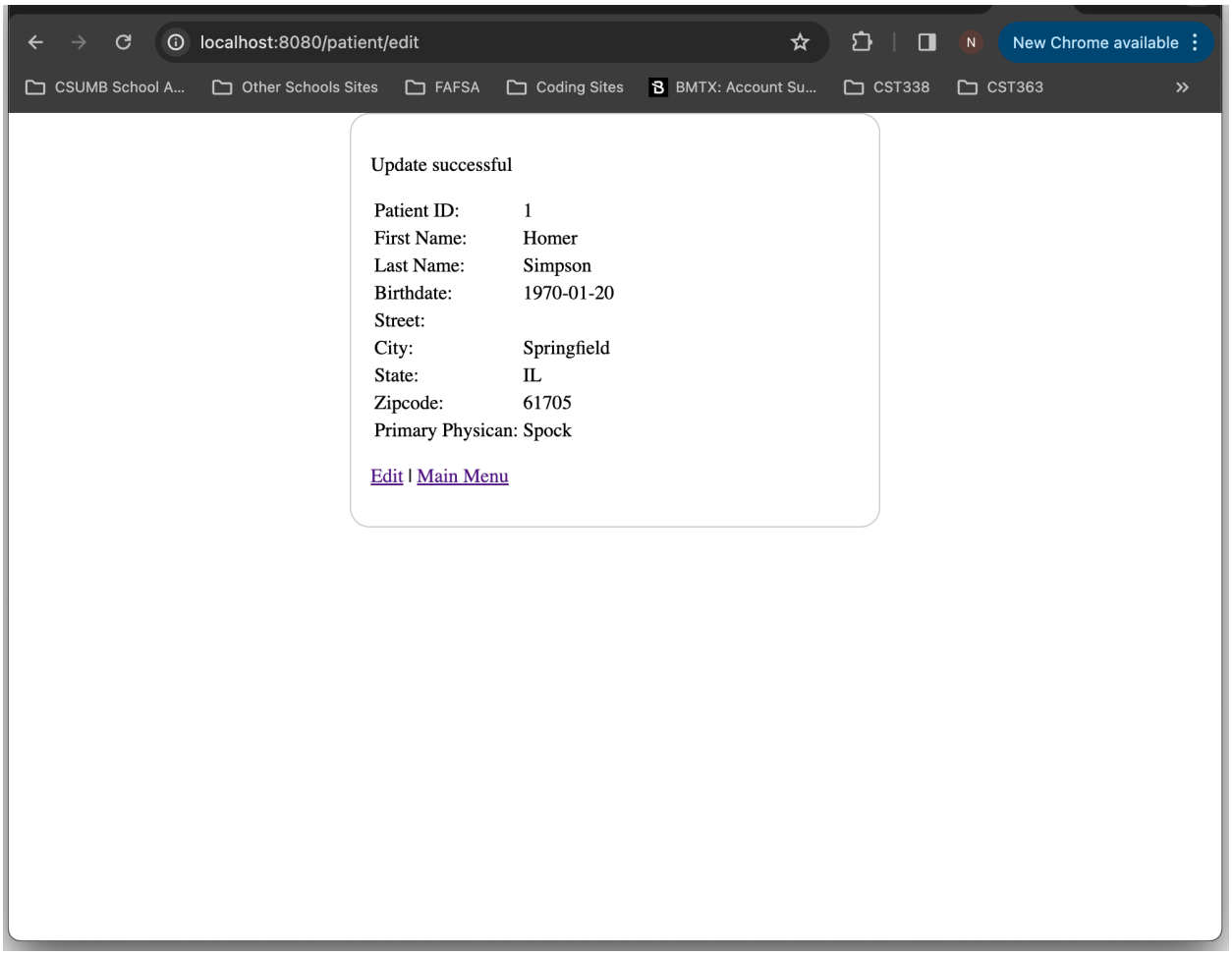
- Get the profile for patient “Simpson” and edit the patient record for “Simpson” and change city to Springfield and zip code to 61705. Show the web page of the successful update.



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- Edit the patient record for “Simpson”. Attempt to change the doctor’s name to a doctor that does not exist. Show the error message and edit patient form.